

IN THE CLAIMS

This listing of the claim will replace all prior versions and listings of claim in the present application.

Listing of Claims

1. (currently amended) A storage device~~, system,~~ for use in a computer system having a plurality of ~~superior~~host devices and a plurality of said storage device-systems~~,~~ for receiving write-in data from at least one of the ~~superior~~host devices, said storage system comprising:

a physical storage device~~, responsive to~~ having a logical volume which for storing data,

wherein said storage system is controlled so that identical data is saved across the ~~a~~ plurality of storage device-systems~~, for storing data on the logical~~ volume;

a device for saving the ~~a~~ time of reception on which write-in data was received from a ~~superior~~host device in a data consistency holding table;

wherein said data consistency holding table includes a plurality of entries each indicating a corresponding relation between a reception time of write-in data, an identifier of a host which sent the write-in data to said storage system, an address at which the write-in data is to be stored, an identifier of a storage system in which the write-in data is stored and an address in a temporary storage device within which the write-in data is temporarily stored;

a communication interface device for conducting bi-directional transmission of write-in data including transmitting write-in data addressed to the logical volume and

a corresponding reception time to another storage device-system and ~~for~~ receiving write-in data addressed to the logical volume and the corresponding reception time from the another storage device-system; and

a data consistency holding control device for effecting control, based on said data consistency holding table, to write write-in data which was received from the superior host device and write-in data which was received through the communication interface device into the physical storage device after such write-in data has been made to wait in a the temporary storage device for more than a predetermined time as measured from the reception time corresponding to the write-in data to the logical volume, so that, when write-in data which was received from the superior host device and write-in data which was received through the communication interface device are written in an overlapped manner into the same storage location of the physical storage device, they are written in ~~the~~ an order of ~~the~~ as indicated by their respective reception time thereof times.

2. (currently amended) The storage device-system as set forth Claim 1, ~~wherein the storage device-system further comprising~~ has a table in which the ~~reception times corresponding to each write-in data which is waiting in the temporary storage device are arranged in the order from an older one, and~~

a device for searching write-in data to determine for which data said more than said predetermined time has passed as measured from the reception time.

wherein said entries of said data consistency holding table are arranged according to said reception times corresponding to each write-in data which is waiting in the temporary storage device in an order from an older one.

3. (currently amended) The storage device-system[-] as set forth in Claim 1, ~~wherein the storage device system further comprising:~~has

a bit map table for setting a bit value to indicate whether or not each block of the write-in data exists in the temporary storage device₁ and

a device for judging whether or not new write-in data is written in an overlapped manner into the same storage location as the other write-in data with reference to the bit map table.

4. (currently amended) The storage device-system as set forth in Claim 1, ~~wherein the storage device system further comprising:~~has

a device for receiving a request for locking a partial region of the logical volume from the superior device and for locking the partial region₁

a device for transmitting the locking request which was received through the communication interface device to the other storage device system₁

a device for receiving the locking request through the communication interface device from the other storage device system and for locking a designated partial region₁ and

a device for rejecting a request for write-in of data from the superior device and the other storage device system to the partial region, except for a case in which it is a request from the superior device in which the partial region was locked.

5. (currently amended) A storage device-system for use in a computer system having a plurality of superior-host devices and a plurality of said storage device-systems for receiving write-in data from at least one of the superior-host devices, comprising:

a physical storage device, ~~responsive to~~having a logical volume which ~~for~~storing data,

wherein said storage system is controlled so that identical data is saved across the ~~a plurality of storage device-systems, for storing data on the logical~~ volume;

a device for saving the ~~a~~ time of reception on which write-in data was received from a superior-host device in a data consistency holding table;

wherein said data consistency holding table includes a plurality of entries each indicating a corresponding relation between a reception time of write-in data, an identifier of a host which sent the write-in data to said storage system, an address at which the write-in data is to be stored, an identifier of data storage system in which the write-in data is stored and an address in a temporary storage device within which the write-in data is temporarily stored;

a communication interface device for conducting bi-directional transmission of write-in data including transmitting write-in data addressed to the logical volume and

a corresponding reception time to another storage device system and for receiving write-in data addressed to the logical volume and corresponding reception time from the storage device system;

wherein a table in which the reception times in said data consistency holding table corresponding to each of write-in data from the superior host device and write-in data from the other storage device system are arranged in an order from an older one to a newest one; and

a data consistency holding control device for effecting control, with reference to the based on said data consistency holding table to write write-in data to the logical volume for which more than a predetermined time has passed as measured from the reception time into the physical storage device in the order of the older reception time.

6. (currently amended) The storage device system as set forth in Claim 5, wherein the storage device system further comprising: has

a device for receiving a request for locking a partial region of the logical volume from the superior device and for locking the partial region;₁

a device for transmitting the locking request which was received through the communication interface device to the other storage device system;₁

a device for receiving the locking request through the communication interface device from the other storage device system and for locking a designated partial region;₁ and

a device for rejecting a request for write-in of data from the superior device and the other storage device system to the partial region, except for a case in which it is a request from the superior device in which the partial region was locked.